

Claims

- [c1] 1. A driving circuit for driving a light-emitting device inside a display device, wherein the light-emitting device has a positive terminal and a negative terminal, the driving circuit comprising: a biasing device having a first terminal point and a second terminal point, wherein the first terminal point is connected to a terminal for receiving a data current and the second terminal point is connected to a ground; a switching transistor having a first drain terminal, a first gate terminal and a first source terminal, wherein the first drain terminal is connected to the first terminal point and the first gate terminal is connected to a scan line; a capacitor having a third terminal point and a fourth terminal point, wherein the third terminal point is connected to the first source terminal and the fourth terminal point is connected to the ground; a voltage coupler having an input terminal and an output terminal, wherein the input terminal is connected to the first source terminal and the third terminal point whereas the output terminal is connected to the light-emitting device.
- [c2] 2. The driving circuit of claim 1, wherein the biasing device is an organic light emitting diode.
- [c3] 3. The driving circuit of claim 1, wherein the voltage coupler

includes a driving transistor having a second drain terminal in addition to the input terminal and the output terminal and the second drain terminal is connected to a power supply that provides a voltage (V_{DD}).

- [c4] 4. The driving circuit of claim 3, wherein the driving transistor is an N-type thin film transistor.
- [c5] 5. The driving circuit of claim 3, wherein the driving transistor is a P-type thin film transistor.
- [c6] 6. The driving circuit of claim 1, wherein the light-emitting device is an organic light-emitting diode.
- [c7] 7. The driving circuit of claim 1, wherein the light-emitting device is a high molecular weight light-emitting diode.
- [c8] 8. The driving circuit of claim 1, wherein the switching transistor is an N-type thin film transistor.
- [c9] 9. The driving circuit of claim 1, wherein the switching transistor is a P-type thin film transistor.
- [c10] 10. A display device having a plurality of pixels with each pixel comprising:
a switching transistor having a first drain terminal, a first gate terminal and a first source terminal, wherein the first drain terminal is connected to a biasing device and the first gate terminal is connected to a scan line;

a capacitor having a first terminal point and a second terminal point, wherein the first terminal point is connected to the first source terminal and the second terminal point is connected to a ground;

a voltage coupler having an input terminal and an output terminal, wherein the input terminal is connected to the first source terminal and the first terminal point; and

a light-emitting device having a positive terminal and a negative terminal, wherein the positive terminal is connected to the output terminal and the negative terminal is connected to the ground;

wherein the biasing device has a third terminal point and a fourth terminal point, the third terminal point is connected to a terminal for receiving a data current and the first drain terminal, and the fourth terminal point is connected to the ground.

[c11] 11. The driving circuit of claim 10, wherein the biasing device is an organic light emitting diode.

[c12] 12. The driving circuit of claim 10, wherein the voltage coupler includes a driving transistor having a second drain terminal in addition to the input terminal and the output terminal and the second drain terminal is connected to a power supply that provides a voltage (V_{DD}).

[c13] 13. The driving circuit of claim 12, wherein the driving

transistor is an N-type thin film transistor.

[c14] 14. The driving circuit of claim 12, wherein the driving transistor is a P-type thin film transistor.

[c15] 15. The driving circuit of claim 10, wherein the light-emitting device is an organic light-emitting diode.

[c16] 16. The driving circuit of claim 10, wherein the light-emitting device is a high molecular weight light-emitting diode.

[c17] 17. The driving circuit of claim 10, wherein the switching transistor is an N-type thin film transistor.

[c18] 18. The driving circuit of claim 10, wherein the switching transistor is a P-type thin film transistor.